Systems Engineering Approach to Smart and Sustainable Cities Challenges

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Systems Engineering Approach For Smart and Sustainable Cities

❑ Need for <u>Systems Thinking</u> especially for large systems and Systems of Systems (SoS)

❑ Need for <u>Strategic System Engineering</u> approach

❑ Need for capturing actual <u>System Emergent Properties</u>

❑ Need for <u>Transparency and Collaboration</u> across the verticals

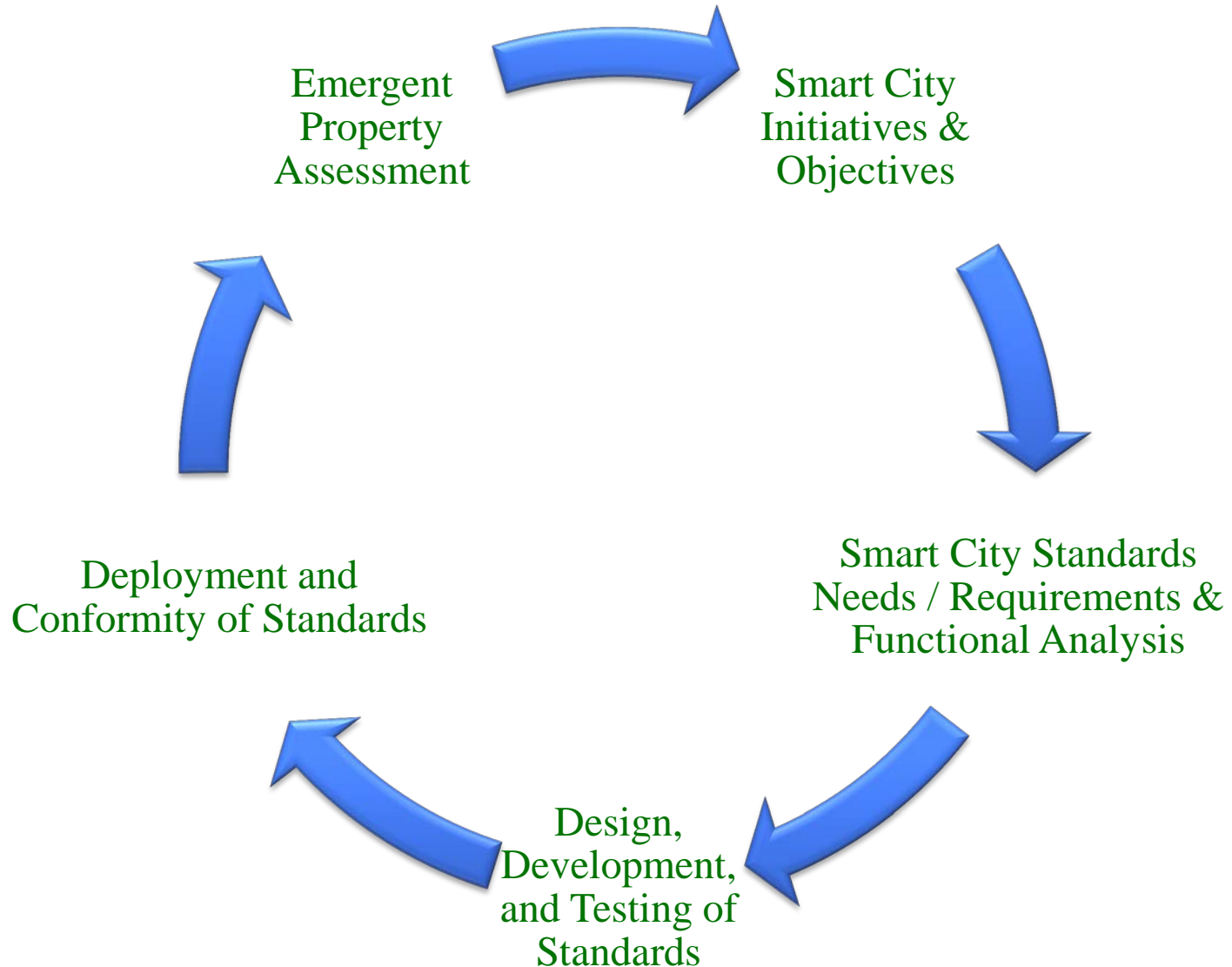❑ Need for common <u>Model Based Systems Engineering Tool(s)</u> to provide necessary holistic view of system

Systems Thinking & Systems Engineering

❑ "Systems thinking is a framework for seeing interrelationships rather than things, for seeing patterns rather then static snapshots. It is a set of general principles spanning fields as diverse as physical and social sciences, engineering and management." [Peter Senge , The Fifth Discipline]

❑ "Systems engineering is an interdisciplinary approach and means to enable the realization of successful systems". [INCOSE Systems Engineering Handbook]

❑ Systems Engineering is all about creating and sustaining successful, purposeful, systems

— Relates to the development and delivery of goods and services

— Delivers real benefits to the suppliers, customers, and society

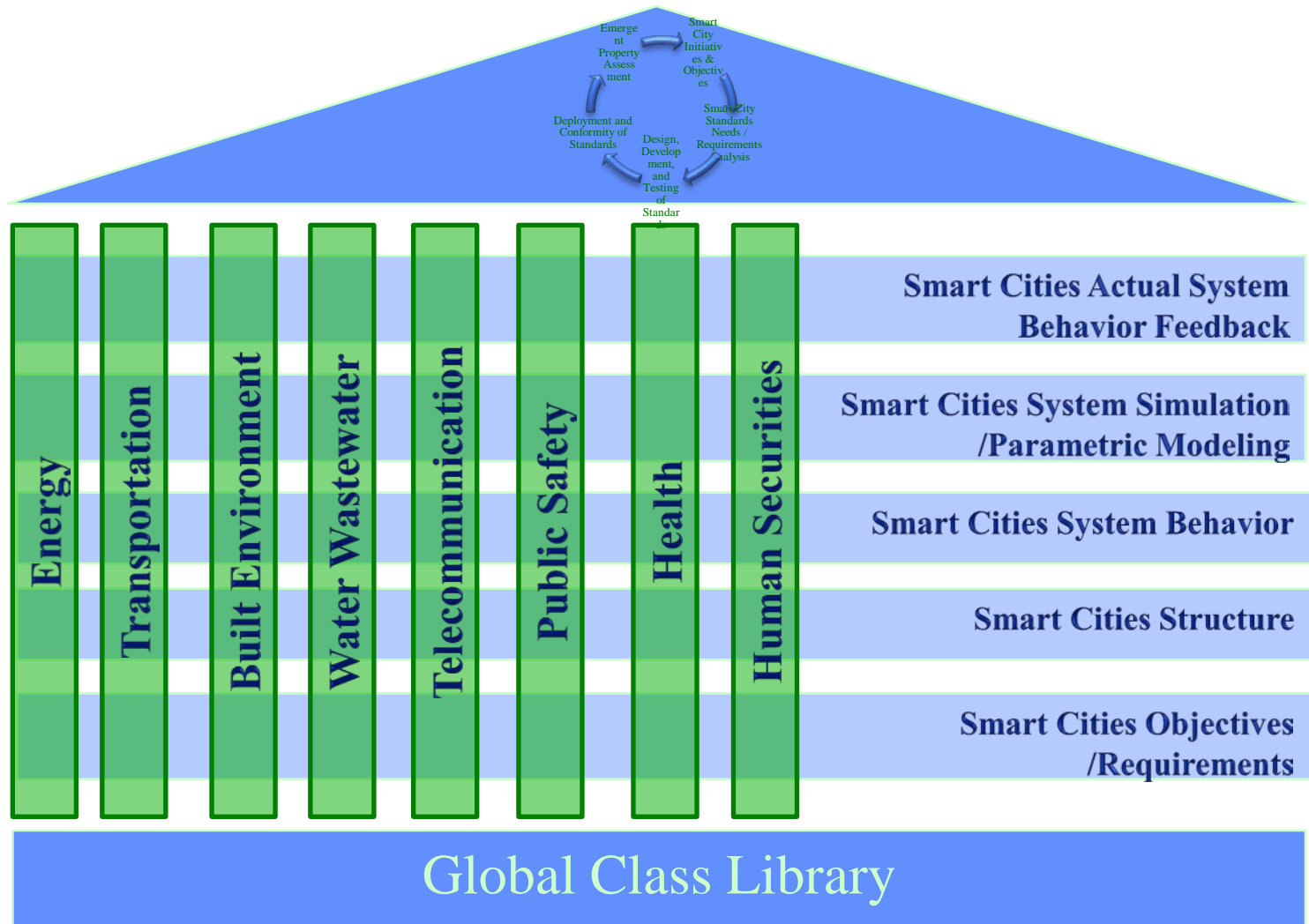— Works with all technical domains, and all business functions

http://www.incoseonline.org.uk/Normal_Files/WhatIs/Systems_Engineering.aspx?CatID=What_Is_SE

Systems and Standards Life Cycle

Emergent Property Assessment

Smart City Initiatives & Objectives

Smart City Standards Needs / Requirements & Functional Analysis

Deployment and Conformity of Standards

Design, Development, and Testing of Standards

SMART
SUSTAINABLE
CITIES

Smart Cities (Systems of Systems) and Strategic Systems Engineering Approach

Thank You

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